

10/784,553

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) An apparatus for purification of an acrylic acid family, which is an apparatus for distillation purification of the acrylic acid family encompassing acrylic acid and its esters and comprises:

a distillation column to which a liquid containing the acrylic acid family is supplied, and from the column top of which a vapor is retrieved, and from the column bottom of which a liquid is retrieved, wherein an outer diameter of the distillation column is in a range of 2 to 6 m, a height of the distillation column is in a range of 2 to 40 m, and a capacity of the distillation column is in a range of 0.5 to 100 m³;

a condenser which is connected to the column top side of the distillation column, and to which the vapor having been retrieved from the distillation column is supplied, and which condenses the supplied vapor and then refluxes a portion of the resultant condensate to the distillation column, and from which the residual condensate is retrieved; and

a reboiler which is connected to the column bottom side of the distillation column, and to which the liquid in the distillation column is supplied, and which heat-boils the supplied liquid and then returns it to the distillation column;

wherein the reboiler is set in a number of at least two in parallel to the distillation column in order to prevent channeling of the liquid or vapor in the distillation column, thus preventing formation and adhesion of polymer

10/784,553

and clogging caused therefrom in the distillation column and the reboilers.

2. (original) An apparatus for purification of an acrylic acid family according to claim 1, wherein the condenser is disposed in a number of at least two in parallel to the distillation column.

3. (currently amended) An apparatus for purification of an acrylic acid family according to claim 1, ~~wherein~~

~~the distillation column is the shape of a cylinder having an outer diameter of 2 to 6 m;~~

~~the at least two reboilers are disposed symmetrically as to the center of the distillation column in a horizontal direction; and~~

~~the distillation column and the reboilers are connected to each other through liquid retrieving pipes for retrieving the liquid from the distillation column and then supplying the retrieved liquid to each of the reboilers and through vapor returning pipes for returning a vapor from each of the reboilers to the distillation column~~

wherein at least two reboilers are connected to the column bottom of the distillation column in such a way that pressure drops caused when the liquid passes from the column bottom to the reboilers are equal in order to avoid a problem of liquid, being retrieved from the distillation column, having a bias toward a specific reboiler.

4. (currently amended) ~~A process~~ An apparatus for purification of an acrylic acid family according to claim 1, ~~which is a process for distillation purification of the acrylic acid family with the apparatus for the purification as recited in claim 1,~~

10/784,553

~~with the process comprising the steps of supplying the liquid from the distillation column to the at least two reboilers and returning the heat-boiled vapor from the reboilers to the distillation column~~

wherein the liquid-retrieving pipes, through which the at least two reboilers and the distillation column are connected to each other, are equal or symmetrical with respect to the distillation column as a center.

5. (new) An apparatus for purification of an acrylic acid family according to claim 1, wherein at least two reboilers are connected to the distillation column in such a way that pressure drops caused when the liquid passes from the reboilers to the distillation column are equal in order to well disperse gas into the distillation column.

6. (new) An apparatus for purification of an acrylic acid family according to claim 1, wherein vapor-returning pipes are equipped separately to individual reboilers.

7. (new) An apparatus for purification of an acrylic acid family according to claim 1, wherein positions of connections of vapor-returning pipes from the two reboilers to the distillation column are disposed symmetrically as to the distillation column.

8. (new) A process for purification of an acrylic acid family, which is a process for distillation purification of the acrylic acid family with the apparatus for the purification as recited in claim 1,

with the process comprising the steps of supplying the liquid from the distillation column to the at least two

10/764,553

reboilers and returning a heat-boiled vapor from the
reboilers to the distillation column.